

What is claimed is:

1. A refrigerant compressor, comprising:
 - an overall casing,
 - an electric motor disposed in the overall casing with a stator and a rotor,
 - a screw compressor disposed in the overall casing, a compressor screw of which is rotatably mounted in the overall casing, and
 - a drive shaft, said drive shaft being a one-piece part extending in an axial direction beyond both sides of the rotor and said compressor screw and bearing the rotor and said compressor screw, said drive shaft being rotatably mounted in said overall casing by a first radial roller bearing between the rotor and the compressor screw and a second radial roller bearing disposed on a side of the compressor screw lying opposite the first radial roller bearing, and said drive shaft being mounted in the overall casing by a third radial roller bearing which is disposed on a side of the rotor lying opposite the first radial roller bearing, a portion of the drive shaft which extends between the first radial roller bearing and one of the second and third radial roller bearings being adapted to compensate for alignment errors between the three radial roller bearings.
2. The refrigerant compressor as claimed in claim 1, wherein at least part of the drive portion is adapted to be flexible with respect to bending.

3. The refrigerant compressor as claimed in claim 1, wherein an outside diameter of the drive portion is adapted such that the maximum torque applied by the rotor can be transmitted to the screw compressor.
4. The refrigerant compressor as claimed in claim 1, wherein an outside diameter of at least part of the drive portion is less than one fifth of the rotor length.
5. The refrigerant compressor as claimed in claim 4, wherein the outside diameter of at least part of the drive portion is equal to or less than one sixth of the rotor length.
6. The refrigerant compressor as claimed in claim 4, wherein the rotor length is equal to or greater than 1.7 times the outside rotor diameter.
7. The refrigerant compressor as claimed in claim 6, wherein the rotor length is equal to or greater than twice the outside rotor diameter.
8. The refrigerant compressor as claimed in claim 1, wherein the third radial bearing is held by a cover of the overall casing.
9. The refrigerant compressor as claimed in claim 1, wherein said screw compressor comprises more than one compressor screw.

10. The refrigerant compressor as claimed in claim 1, wherein the drive shaft is provided with a lubricant channel leading to the third radial bearing.
11. The refrigerant compressor as claimed in claim 1, wherein the overall casing has a central portion which is closed off on the side having the electric motor by a casing cover and is closed off on the side opposite the casing cover by a casing end portion which can be fitted on.
12. The refrigerant compressor as claimed in claim 11, wherein a compressor casing of the screw compressor is disposed in the central portion.
13. The refrigerant compressor as claimed in claim 12, wherein the compressor casing is integrally formed into the central portion.
14. The refrigerant compressor as claimed in claim 11, wherein a first bearing mount of the first radial bearing is disposed in the central portion.
15. The refrigerant compressor as claimed in claim 14, wherein the bearing mount is integrally formed into the central portion.
16. The refrigerant compressor as claimed in claim 11, wherein a second bearing mount of the second radial bearing is disposed in the casing end portion.

17. The refrigerant compressor as claimed in claim 11, wherein a mount for the stator of the electric motor is provided in the central portion.
18. The refrigerant compressor as claimed in claim 17, wherein the mount for the stator is integrally formed in the central portion.